

## CLAIMS

What is claimed is:

1. A method to control exhaust emissions of a compression-ignition engine having an exhaust aftertreatment device, comprising:
  - monitoring operation of the compression-ignition engine;
  - determining a temperature of the exhaust aftertreatment device, based upon the monitored operation of the compression-ignition engine; and,
  - controlling an engine operating point based upon the determined temperature of the exhaust aftertreatment device.
2. The method of claim 1, wherein monitoring operation of the compression-ignition engine comprises monitoring engine fuel delivery and monitoring engine rotational speed.
3. The method of claim 1, wherein determining the temperature of the exhaust aftertreatment device comprises monitoring temperature of the exhaust aftertreatment device using a temperature sensor.
4. The method of claim 3, wherein determining the temperature of the exhaust aftertreatment device further comprises modeling temperature of the exhaust aftertreatment device based upon input from the temperature sensor.
5. The method of claim 4, wherein controlling the engine operating point based upon the determined temperature of the exhaust aftertreatment device comprises reducing the engine operating point when the determined temperature of the exhaust aftertreatment device exceeds a predetermined value.
6. The method of claim 1, wherein controlling the engine operating point based upon the determined temperature of the exhaust aftertreatment device comprises controlling fuel delivery to the engine from a plurality of fuel injectors.

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7. The method of claim 1, wherein controlling the engine operating point based upon the determined temperature of the exhaust aftertreatment device comprises controlling exhaust gas recirculation to the engine.

35 8. A method to control temperature of an exhaust aftertreatment device for a compression-ignition engine, comprising:

monitoring operation of the compression-ignition engine;

determining a temperature of the exhaust aftertreatment device, based upon the monitored operation of the compression-ignition engine; and,

40 controlling an engine operating point based upon the determined temperature of the exhaust aftertreatment device.

9. The method of claim 8, wherein controlling the engine operating point based upon the determined temperature of the exhaust aftertreatment device 45 comprises controlling the engine operating point when the determined temperature of the exhaust aftertreatment device exceeds a predetermined value.

10. The method of claim 9, wherein controlling the engine operating point based upon the determined temperature of the exhaust aftertreatment device 50 comprises reducing a quantity of fuel delivered to the compression ignition engine through a plurality of fuel injectors.

11. A control system for controlling exhaust emissions of a compression-ignition engine having an exhaust aftertreatment device, comprising:

55 a controller, signally electrically attached to at least sensor and operably attached to at least one engine output device;

wherein the controller is operable to:

monitor operation of the compression-ignition engine, based upon input from the at least one sensor;

60 determine a temperature of the exhaust aftertreatment device,

based upon the monitored operation of the compression-ignition engine and input from the at least one sensor; and,

control an engine operating point by controlling the at least one engine output device, based upon the determined temperature of the  
65 exhaust aftertreatment device.

12. The control system of claim 11, wherein the at least one engine monitoring sensor comprises an exhaust temperature sensor.

70 13. The control system of claim 11, wherein the at least one engine output device comprises a plurality of fuel injectors.

14. The control system of claim 11, wherein the at least one engine output device further comprises a turbosupercharger.

75 15. A control system for controlling temperature of an exhaust aftertreatment device of a compression-ignition engine, comprising:  
a controller, said controller signally electrically attached to an exhaust temperature sensor, and operably attached to a plurality of fuel injectors;

80 wherein said controller is operable to:

monitor operation of the compression-ignition engine, based upon input from the exhaust temperature sensor,

85 determine a temperature of the exhaust aftertreatment device, based upon the monitored operation of the compression-ignition engine and input from the exhaust temperature sensor; and,

control an engine operating point by controlling the plurality of fuel injectors, based upon the determined temperature of the exhaust aftertreatment device.